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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/069,088	04/29/1998	SHENG LIANG	06502.0129-0	3016

22852 7590 10/05/2004

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EXAMINER

NGUYEN, VAN H

ART UNIT

PAPER NUMBER

2126

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/069,088	Applicant(s) LIANG, SHENG	
	Examiner VAN H NGUYEN	Art Unit 2126	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6/15/04.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-22 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-22 and 24-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1-6, 8-22, and 24-33 are presented for examination.

#### *Claim Rejections - 35 USC § 103*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6, 8-22, and 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jackson** (U.S. 5,297,274).

4. As to claims 1, 9, 17, and 25, Jackson teaches the invention substantially as claimed including a method for time profiling multiple threads of execution corresponding to a program (see the abstract and col. 2, lines 20-30), comprising:

determining whether register data corresponding to a selected thread has changed from a previous interrupt of all of the threads; and providing an indication of the change for the selected thread (see the abstract and col.3, lines 33-54).

Jackson does not explicitly teach “periodically interrupting execution of all of the threads.”

It would have been obvious to have applied the teaching of Jackson to include “periodically interrupting” in order to provide means for efficiently identifying areas of the application program requiring excessive execution time.

The fact that Jackson's teachings "insert a running thread program into the selected application which continuously generates breakpoint interrupts on a periodic basis (abstract and col.3, lines 40-44) and the use of generating breakpoint interrupts on a periodic basis in Jackson suggests "periodically interrupting."

5. As to claims 2, 10, and 18, Jackson teaches accessing stored data corresponding to the selected thread (col.2, lines 8-30).

Jackson does not explicitly teach "comparing the stored data with register information stored following a previous interrupt."

It would have been obvious to have applied the teaching of Jackson to include "comparing the stored data with register information stored following a previous interrupt" in order to provide means for efficiently identifying areas of the application program requiring excessive execution time.

The fact that Jackson's teachings "the current state of the selected application, including its location counter, is examined and stored. These stored indications of the state of the selected application are then utilized to automatically generate a report including a distribution of the execution times for the selected application" (col.2, lines 20-27) and the purpose of utilizing the stored indications of the state of the selected application to automatically generate a report in Jackson suggests "comparing the stored data with register information stored following a previous interrupt."

6. As to claims 3, 11, and 19, Jackson teaches computing a value corresponding to the stored data and determining a relationship between the computed value and the previously stored register information (col.2, lines 8-30 and col.3, lines 45- 54).

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7. As to claims 4, 12, and 20, Jackson teaches updating a memory segment to reflect that the selected thread is running when it is determined that the computed value and the previously stored register information do not match (col.3, lines 45- 54 and col.4, lines 37-59).

8. As to claims 26 and 30, Jackson teaches assigning a cost indicator to an identified portion of the program that is active when it is determined that the selected thread is running (col.2, lines 8-30 and col.3, lines 45- 54).

9. As to claims 27 and 31, Jackson teaches the cost indicator reflects a number of cycles the selected thread was running in the identified portion of the program (col.2, lines 8-30 and col.3, lines 45- 54).

10. As to claims 8, 16, and 24, the rejection of claims 1, 9, and 17 above is incorporated herein in full. Jackson, however, does not explicitly teach “indicates that the thread is running by comparing the information to stored information from previous interrupt of all threads.”

It would have been obvious to have applied the teaching of Jackson to include “indicates that the thread is running by comparing the information to stored information from previous interrupt of all threads” in order to provide means for efficiently identifying areas of the application program requiring excessive execution time.

The fact that Jackson’s teachings “each time a breakpoint interrupt is generated by the running thread program execution of the selected application is suspended and the current state of the selected application, including its location counter, is examined and stored. These stored indications of the state of the selected application are then utilized to automatically generate a report including a distribution of the execution times for the selected application” (col.2, lines 8-30) and the purpose of utilizing the stored indications of the state of the selected application to

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automatically generate a report in Jackson suggests “comparing the stored data with register information stored following a previous interrupt.”

11. As to claim 13, the rejection of claim 1 above is incorporated herein in full. Claim 13, Additionally, Jackson further teaches a multi-threaded program (see the abstract and col.2, lines 3-30).

11. As to claims 5 and 21, the rejection of claim 1 above is incorporated herein in full. Additionally, Jackson further teaches suspending execution of the multi-threaded program and retrieving register data corresponding to the selected thread (col.2, lines 16-30).

12. As to claims 6, 14, and 22 Jackson teaches updating the previous register information based on the computed value (col.2, lines 8-30 and col.3, lines 45- 54).

13. As to claim 15, Jackson teaches providing an indication corresponding to a portion of the program containing the selected thread (see the abstract and col.2, lines 8-30).

14. As to claims 28 and 32, Jackson teaches the indicator reflects a number of cycles the selected thread was running in a portion of the program that is active when it is determined the selected thread is running (col.3, lines 9-44).

15. As to claims 29 and 33, Jackson teaches the cost indicator reflects a number of cycles the selected thread was running in the identified portion of the program (col.2, lines 8-30 and col.3, lines 45- 54).

### ***Response to Arguments***

16. Applicant's arguments filed June 15, 2004 have been fully considered but they are not persuasive.

17. In the remarks, Applicant argued in substance that (1) Jackson does not teach determining whether register data corresponding to a selected thread has changed from a previous interrupt of all of the threads (2) the Examiner admits that Jackson does not teach "comparing the stored data with register information stored following a previous interrupt"...the Examiner neither cites a reference nor takes official notice to supply the missing teaching (3) Applicant can find no teaching of "computing a value corresponding to the stored data and determining a relationship between the computed value and the previously stored register information" in Jackson.

18. Examiner respectfully traverses Applicant's remarks:

A. As to point (1), the Examiner believes that Jackson's teachings "each time mole program 36 generates a breakpoint the execution of application 30 is temporarily suspended and monitor function 32 may be utilized to analyze the current state of the registers within application 30 and determine where execution is taking place" (col.3, lines 45-49) do read on the claimed limitations. By analyzing the current state of the registers, monitor program can determine whether register data corresponding to a selected thread has changed from a previous interrupt of all of the threads.



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B. As to point (2), although the Examiner admits that Jackson does not explicitly teach “comparing the stored data with register information stored following a previous interrupt, the Examiner does point out the portion in Jackson that suggests the claimed limitations. Jackson must compare the stored indications of the state of the selected application to automatically generate a report including the execution times of the selected application.

C. As to point (3), the Examiner believes that Jackson’s teachings “each time a breakpoint interrupt is generated by the running thread program execution of the selected application is suspended and the current state of the selected application, including its location counter, is examined and stored. These stored indications of the state of the selected application are then utilized to automatically generate a report including a distribution of the execution times for the selected application” (col.2, lines 20-27) do read on the claimed limitations. For generating a report including a distribution of the execution times, Jackson must compute the stored indications of the state of the selected application.

### *Conclusion*

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Grants et al. (U.S. 4070702) teaches “Contact histogram for programmable controller”

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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21. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **VAN H. NGUYEN** whose telephone number is (703) 306-5971. **After mid-October, 2004, the examiner can be reached at (571) 272-3765.** The examiner can normally be reached on Monday-Thursday from 8:30AM - 6:00PM. The examiner can also be reached on alternative Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678.


The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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VHN



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